

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

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Title of Invention

MATERIALS AND METHODS FOR IMPRINT LITHOGRAPHY

Application Number : 10/763885



Confirmation Number: 6002

First Named Applicant: Frank Xu

Attorney Docket Number: P113-55-03

Art Unit: 1752

Examiner: Amanda C. Walke

Search string: (6468642 or 5542978 or 5837314 or 6565776 or 6503914 or 6649272 or 6204343 or 4614667 or 3810874 or 6737489 or 6721529 or 6664306 or 6790905 or 6544594 or 6774183 or 6830819 or 6802870 or 5389696).pn

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
<i>KW</i>	1	6468642	2002-10-22	Bray et al.	B1		
	2	5542978	1996-08-06	Kindt-Larsen et al.			
	3	5837314	1998-11-17	Beaton et al.			
	4	6565776	2003-05-20	Li et al.	B1		
	5	6503914	2003-01-07	Benish et al.	B1		
	6	6649272	2003-11-18	Moore et al.	B2		
	7	6204343	2001-03-20	Barucha et al.	B1		
	8	4614667	1986-09-30	Larson et al.			
	9	3810874	1974-05-14	Mitsch et al.			
	10	6737489	2004-05-18	Linert et al.	B2		
	11	6721529	2004-04-13	Chen et al.	B2		
	12	6664306	2003-12-16	Gaddam et al.	B2		
	13	6790905	2004-09-14	Fitzgerald et al.	B2		
	14	6544594	2003-04-08	Linford et al.	B2		
	15	6774183	2004-08-10	Palumbo et al.	B1		
<i>V</i>	16	6830819	2004-12-14	Kaplan et al.	B2		
<i>V</i>	17	6802870	2004-10-12	Chang et al.	B2		
<i>Jan</i>	18	5389696	1995-02-14	Dempsey et al.			

Signature

Examiner Name	Date
<i>John Walker</i>	<i>June 8, 2005</i>

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PTO/SB/08A (08-00)

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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

1

of

5

Complete if Known

Application Number

10/763,885

Filing Date

01/23/2004

First Named Inventor

Xu et al.

Group Art Unit

Unassigned

Examiner Name

Unassigned

Attorney Docket Number

P113/MII-79-61-03

U.S. PATENT DOCUMENTS

[illegible]

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Sheet

2

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Application Number	10/763,885
Filing Date	01/23/2004
First Named Inventor	Xu et al.
Group Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	P113/MJI-79-61-03

[illegible]

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Date
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Substitute for form 1449B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	10/763,885
		Filing Date	01/23/2004
		First Named Inventor	Xu et al.
		Group Art Unit	Unassigned
		Examiner Name	Unassigned
Sheet 3 of 5	Attorney Docket Number	P113/MII-79-61-03	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	A18	KRUG et al., "Fine Patterning of Thin Sol-Gel Films," Journal of Non-Crystalline Solids, 1992, pp. 447-450, vol. 147 & 148.	
AW	A19	Krauss et al., "Fabrication of Nanodevices Using Sub-25nm Imprint Lithography," Appl. Phys. Lett 67(21), 3114-3116, 1995	
	A20	CHOU et al., "Imprint of Sub-25 nm Vias and Trenches in Polymers," Applied Physics Letters, November 20, 1995, pp. 3114-3116, vol. 67(21).	
	A21	CHOU et al., "Imprint Lithography with 25-Nanometer Resolution," Science, Apr. 5, 1996, pp. 85-87, vol. 272.	
	A22	HAISMA et al., "Mold-Assisted Nanolithography: A Process for Reliable Pattern Replication," Journal of Vacuum Science and Technology, Nov/Dec 1996, pp. 4124-4128, vol. B 14(6).	
	A23	CHOU et al., "Imprint Lithography with Sub-10nm Feature Size and High Throughput," Microelectronic Engineering, 1997, pp. 237-240, vol. 35.	
	A24	FELDMAN et al., "Wafer chuck for manification correction in x-ray lithography," American Vacuum Society, 1998, pp. 3476-3479.	
	A25	SCHEER et al., "Problems of the Nanoimprinting Technique for Nanometer Scale Pattern Definition," Journal of Vacuum Science and Technology, Nov/Dec 1998, pp. 3917-3921, vol. B 16(6).	
	A26	COLBURN. et al., "Step and Flash Imprint Lithography: A New Approach to High-Resolution Patterning", Proc. of SPIE, 1999, pp. 379-389, vol. 3676.	
	A27	CHOU et al., "Lithographically-Induced Self Assembly of Periodic Polymer Micropillar Arrays," Journal of Vacuum Science and Technology, Nov/Dec 1999, pp. 3197-3202, vol. B 17(6).	
AW	A28	RUCHHOEFT et al., "Patterning Curved Surfaces: Template Generation by Ion Beam Proximity Lithography and Relief Transfer by Step and Flash Imprint Lithography," Journal of Vacuum Science and Technology, 1999, pp. 2965-2982, vol. 17.	

Examiner Signature	<i>Julia C. Walker</i>	Date Considered	June 8, 2005
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		Filing Date	01/23/2004
		First Named Inventor	Xu et al.
		Group Art Unit	Unassigned
		Examiner Name	Unassigned
		Attorney Docket Number	P113/MII-79-61-03
Sheet	4	of	5

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
Jan	A29	CHOI et al., "Design of Orientation Stages for Step and Flash Imprint Lithography," Precision Engineering, Journal of the International Societies for Precision Engineering and Nanotechnology, 2001, pp. 192-199, vol. 25.	
	A30	CHOI et al., "High Precision Orientation Alignment and Gap Control Stages for Imprint Lithography Processes," U.S. Patent Application 09/698,317. Filed with USPTO on October 27, 2000.	
	A31	SREENIVASAN et al., "High-Resolution Overlay Alignment Methods and Systems for Imprint Lithography," U.S. Patent Application Publication 2002/0098426. Published on July 25, 2002.	
	A32	CHOI et al., "Method and System of Automatic Fluid Dispensing for Imprint Lithography Processes," U.S. Patent Application Publication 2002/0094496. Published on July 18, 2002.	
	A33	CHOI et al., "Methods for High-Precision Gap and Orientation Sensing Between a Transparent Template and Substrate for Imprint Lithography," U.S. Patent Application Publication 2003/0093122. Published on July 18, 2002.	
	A34	VOISIN, "Methods of Manufacturing a Lithography Template," U.S. Patent Application Publication 2003/0205657. Published on November 6, 2003.	
	A35	SREENIVASAN et al., "Step and Repeat Imprint Lithography Systems," U.S. Patent Application Publication 2004/0008334. Published on January 15, 2004.	
	A36	SREENIVASAN et al., "Step and Repeat Imprint Lithography Processes," U.S. Patent Application 10/194,991. Filed with USPTO July 11, 2002.	
	A37	OTTO M. et al., "Step and Repeat UV-Nanoimprint Lithography: Material Issues," Nanoimprint and Nanoprint Technology Conference, San Francisco, December 11-13, 2002.	
	A38	JOHNSON, et al., "Advances in Step and Flash Imprint Lithography," SPIE Microlithography Conference, February 23-28, 2003.	
Jan	A39	CHOI et al., "A Chucking System and Method for Modulating Shapes of Substrates," U.S. Patent Application 10/293,224. Filed with USPTO on November 13, 2002.	

Examiner Signature	<i>John C. Wacker</i>	Date Considered	6/8/05
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Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete If Known			
		Application Number	10/763,885		
		Filing Date	01/23/2004		
		First Named Inventor	Xu et al.		
		Group Art Unit	Unassigned		
		Examiner Name	Unassigned		
Sheet	5	of	5	Attorney Docket Number	P113/MII-79-61-03

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
AW	A40	VOISIN, "Methods of Inspecting A Lithography Template," U.S. Patent Application 10/293,919. Filed with USPTO on November 13, 2002	
	A41	CHOI et al., "A Method For Modulating Shapes of Substrates," U.S. Patent Application 10/316,963. Filed with USPTO on December 11, 2002.	
	A42	CHOI et al., "A Conforming Template For Patterning Liquids Disposed On Substrates," U.S. Patent Application 10/614,716. Filed with USPTO on July 7, 2003.	
	A43	NIMMAKAYALA et al., "Magnification Correction Employing Out-of-Plane Distortion of a Substrate," U.S. Patent Application 10/735,110. Filed with USPTO on December 12, 2003.	
	A44	SREENIVASAN et al., "Method For Concurrently Employing Differing Materials To Form A Layer On A Substrate," U.S. Patent Application 10/760,821. Filed with USPTO January 20, 2004.	
AW	A45	SREENIVASAN, " Full-Wafer Or Large Area Imprinting With Multiple Separated Sub-Fields For High Throughput Lithography, " U.S. Patent Application 10/788,700. Filed with USPTO on February 27, 2004.	

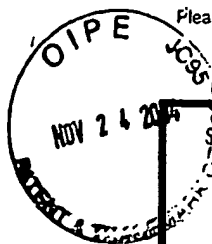
Examiner Signature	<i>[Signature]</i>	Date Considered	June 8, 2005
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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Complete if Known	
				Application Number	10/763,885
				Filing Date	01/23/2004
				First Named Inventor	Xu et al.
				Group Art Unit	1752
				Examiner Name	Amanda C. Walke
Sheet	1	of	17	Attorney Docket Number	P113-55-03

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
ACW	B1	3,527,062		Bilinski et al.	09-08-1970	
	B2	3,783,520		King	01-08-1974	
	B3	3,807,027		Heisler	04-30-1974	
	B4	3,807,029		Troeger	04-30-1974	
	B5	3,811,665		Seelig	05-21-1974	
	B6	4,062,600		Wyse	12-13-1977	
	B7	4,070,116		Frosch et al.	01-24-1978	
	B8	4,098,001		Watson	07-04-1978	
	B9	4,119,688		Hiraoka	10-10-1978	
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	B11	4,155,169		Drake et al.	05-22-1979	
	B12	4,201,800		Alcorn et al.	05-06-1980	
	B13	4,202,107		Watson	05-13-1980	
	B14	4,267,212		Sakawaki	05-12-1981	
	B15	4,326,805		Feldman et al.	04-27-1982	
	B16	4,337,579		De Fazio	07-06-1982	
	B17	4,355,469		Nevins et al.	10-26-1982	
	B18	4,414,750		De Fazio	11-15-1983	
	B19	4,426,247		Toshiakai et al.	01-17-1984	
	B20	4,440,804		Milgram	04-03-1984	
	B21	4,451,507		Beltz et al.	05-29-1994	
	B22	4,507,331		Hiraoka	03-02-1985	
	B23	4,544,572		Sandvig et al.	10-01-1985	
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	B27	4,610,442		Oku et al.	09-09-1986	
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	B31	4,707,218		Giammarco et al.	11-17-1987	
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	B33	4,763,886		Takei	08-16-1988	
	B34	4,808,511		Holmes	02-28-1989	
Examiner Signature	Amanda C. Walke				Date Considered	June 8, 2005

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				Group Art Unit	1752
				Examiner Name	Amanda C. Walke
Sheet	2	of	17	Attorney Docket Number	P113-55-03
(use as many sheets as necessary)					

U.S. PATENT DOCUMENTS						
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		Number	Kind Code ² (if known)			
AM	B35	4,826,943		Ito et al.	05-02-1989	
	B36	4,846,931		Gmitter et al.	07-11-1989	
	B37	4,848,911		Uchida et al.	07-18-1989	
	B38	4,857,477		Kanamori	08-15-1989	
	B39	4,883,561		Gmitter et al.	11-28-1989	
	B40	4,891,303		Garza et al.	01-02-1990	
	B41	4,908,298		Hefferon et al.	03-13-1990	
	B42	4,919,748		Bredbenner et al.	04-24-1990	
	B43	4,921,778		Thackeray et al.	05-01-1990	
	B44	4,929,083		Brunner	05-29-1990	
B45	4,931,351		McColgin et al.	06-05-1990		
B46	4,959,252		Bonnebat et al.	09-25-1990		
B47	4,964,945		Calhoun	10-23-1990		
B48	4,976,818		Hashimoto et al.	12-11-1990		
B49	4,980,316		Huebner	12-25-1990		
B50	4,999,280		Hiraoka	03-12-1990		
B51	5,053,318		Gulla et al.	10-01-1991		
B52	5,063,321		Carter	11-05-1991		
B53	5,071,694		Uekita et al.	12-10-1991		
B54	5,072,126		Progler	12-10-1991		
B55	5,073,230		Maracas et al.	12-17-1991		
B56	5,074,667		Miyatake	12-24-1991		
B57	5,108,875		Thackeray et al.	04-28-1992		
B58	5,110,514		Soane	05-05-1992		
B59	5,126,006		Cronin et al.	06-30-1992		
B60	5,148,036		Matsugu et al.	09-15-1992		
B61	5,148,037		Suda et al.	09-15-1992		
B62	5,151,754		Ishibashi et al.	09-29-1992		
B63	5,169,494		Hashimoto et al.	12-08-1992		
B64	5,173,393		Sezi et al.	12-22-1992		
B65	5,179,863		Uchida et al.	01-19-1993		
B66	5,198,326		Hashimoto et al.	03-30-1993		
B67	5,204,739		Domenicali	04-20-1993		
B68	5,208,983		Guckel et al.	05-04-1993		
Examiner Signature	Amanda C. Walke				Date Considered	June 8, 2005

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				Filing Date	01/23/2004
				First Named Inventor	Xu et al.
				Group Art Unit	1752
				Examiner Name	Amanda C. Walke
Sheet	3	of	17	Attorney Docket Number	P113-55-03

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ACW	B69	5,212,147		Sheats	05-18-1993	
	B70	5,234,793		Sebald et al.	08-10-1993	
	B71	5,240,550		Boehnke et al.	08-31-1993	
	B72	5,240,878		Fizsimmons et al.	08-31-1993	
	B73	5,242,711		DeNatale et al.	09-07-1993	
	B74	5,244,818		Jokerst et al.	09-14-1993	
	B75	5,259,926		Kuwabara et al.	09-09-1993	
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B89	5,392,123		Marcus et al.	02-21-1995		
B90	5,417,802		Obeng	05-23-1995		
B91	5,421,981		Leader et al.	06-06-1995		
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B93	5,424,549		Feldman	06-13-1995		
B94	5,425,964		Southwell et al.	06-20-1995		
B95	5,431,777		Austin et al.	07-11-1995		
B96	5,439,766		Day et al.	08-08-1995		
B97	5,452,090		Proglar et al.	09-19-1995		
B98	5,453,157		Jeng	09-26-1995		
B99	5,458,520		DeMercurio et al.	10-17-1995		
B100	5,468,542		Crouch	11-21-1995		
B101	5,480,047		Tanigawa et al.	01-02-1996		
		INTENTIONAL	BLANK			
Examiner Signature	Amanda C. Walke				Date Considered	June 8, 2005

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		Application Number	10/763,885		
		Filing Date	01/23/2004		
		First Named Inventor	Xu et al.		
		Group Art Unit	1752		
		Examiner Name	Amanda C. Walke		
		Attorney Docket Number	P113-55-03		
Sheet	4	of	17		

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
an	B102	5,515,167		Ledger et al.	05-07-1996	
	B103	5,523,878		Wallace et al.	06-04-1996	
	B104	5,527,662		Hashimoto et al.	06-18-1996	
	B105	5,545,367		Bae et al.	08-13-1996	
	B106	5,566,584		Briganti	10-22-1996	
	B107	5,633,505		Chung et al.	05-27-1997	
	B108	5,654,238		Cronin et al.	08-05-1997	
	B109	5,670,415		Rust	09-23-1997	
	B110	5,700,626		Lee et al.	12-23-1997	
	B111	5,723,176		Keyworth et al.	03-03-1998	
	B112	5,724,145		Kondo et al.	03-03-1998	
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B132	5,948,219		Rohner	09-07-1999		
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B134	5,952,127		Yamanaka	09-14-1999		
B135	6,033,977		Gutsche et al.	03-07-2000		

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			Filing Date	01/23/2004	
			First Named Inventor	Xu et al.	
			Group Art Unit	1752	
			Examiner Name	Amanda C. Walke	
			Attorney Docket Number	P113-55-03	
Sheet	5	of	17		

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		Number	Kind Code ² (if known)			
AW	B136	6,035,805		Rust	03-14-2000	
	B137	6,038,280		Rossiger et al.	03-14-2000	
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Examiner Signature	Amanda C. Walke				Date Considered	June 8, 2005

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/763,885
				Filing Date	01/23/2004
				First Named Inventor	Xu et al.
				Group Art Unit	1752
				Examiner Name	Amanda C. Walke
Sheet	6	of	17	Attorney Docket Number	P113-55-03

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AM	B170	6,534,418	B1	Plat et al.	03-18-2003	
	B171	6,541,360	B1	Plat et al.	04-01-2003	
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	B179	6,713,238	B1	Chou et al.	03-30-2004	
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	B197	2003/0215577	A1	Willson et al.	11-20-2003	
	B198	2003/0235787	A1	Watts et al.	12-25-2003	
	B199	2004/0009673	A1	Sreenivasan et al.	01-15-2004	
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AM	B203	2004/0053146	A1	Sreenivasan et al.	03-18-2004	
Examiner Signature	Amanda C. Walke				Date Considered	June 8, 2005

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				Application Number	10/763,885
				Filing Date	01/23/2004
				First Named Inventor	Xu et al.
				Group Art Unit	1752
				Examiner Name	Amanda C. Walke
				Attorney Docket Number	P113-55-03
Sheet	8	of	17		

[illegible]

Examiner Signature	<i>Paul C. Walker</i>	Date Considered	<i>June 8, 2015</i>
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/763,885
				Filing Date	01/23/20904
				First Named Inventor	Xu et al.
				Group Art Unit	1752
				Examiner Name	Amanda C. Walke
Sheet	9	of	17	Attorney Docket Number	P113-55-03

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
AW	B249	Abstract of Japanese Patent 02-24848, January 26, 1990	
AW	B250	Abstract of Japanese Patent 02-92603, August 12, 2004	
AW	B251	Abstract of Japanese Patent 55-88332, April 14, 2004	
AW	B252	Abstract of Japanese Patent 57-7931, April 14, 2004	
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AW	B254	ANANTHASURESH et al., "Strategies for Systematic Synthesis of Compliant Membrs.", DSC-Vol. 55-2, Dynamic Systems and Control: Volume 2, pp. 677 - 686, November 1, 1994.	
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AW	B258	BENDER et al., "Fabrication of Nanostructures using a UV-based Imprint Technique.", Microelectronic Engineering 53, January 1, 2000, pp. 233-236.	
AW	B259	CHERALA et al., "Applying Imprinting Material to Substrates Employing Electromagnetic Fields," U.S. Patent Application 10/687,562, Filed with USPTO Oct. 16, 2003	

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<i>AW</i>	B260	CHOU et al., "Nanoimprint Lithography and Lithographically Induced Self-Assembly.", MRS Bulletin, July 1, 2001, pp. 512-517.	
<i>/</i>	B261	Chou, Ultrafast and Direct Imprint of Nanostructures in Silicon, Nature, Vol. 417, (June 2002), pp. 835-837.	
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<i>/</i>	B264	FEYNMAN, "There's Plenty of Room at the Bottom.", International Appl. No. PCT/US2002/015551	
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<i>AW</i>	B270	HEXAPODS, "G1000-PS Power Series", www.hexapods.com .	

Examiner Signature	<i>Amanda C. Walke</i>	Date Considered	<i>June 8, 2005</i>
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	10/763,885
		Filing Date	01/23/2004
		First Named Inventor	Xu et al.
		Group Art Unit	1752
		Examiner Name	Amanda C. Walke
Sheet 11 of 17	Attorney Docket Number	P113-55-03	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
[Handwritten marks]	B271	HEXEL COPORATION, "Tornado 2000 System Specifications.", www.hexel.com, November 12, 1999.	
	B272	HIRAI et al., "Mold Surface Treatment for Imprint Lithography.", Journal of Photopolymer Science and Technology, August 1, 2001, Vol. 14, No. 3, pp. 457-462.	
	B273	HOGAN et al., "Impedance Control: An Approach to Manipulation: Part 1- Theory.", Journal of Dynamic Systems, Measurement, and Control, March 1, 1985, Vol. 107, pp. 1-7.	
	B274	HOLLIS et al., "A Six-Degree-of-Freedom Magnetically Levitated Variable Compliance Fine-Motion Wrist: Design, Modeling, and Control.", IEEE Transactions on Robotics and Automation, June 1, 1991, Vol 7., No. 3, pp. 320 - 332.	
	B275	HOWELL et al., "A Loop-Closure Theory for the Analysis and Synthesis of Compliant Mechanisms.", Journal of Mechanical Design, March 1, 1996, Vol. 118, pp. 121-125.	
	B276	HU et al., "Fluorescence Probe Techniques (FPT) for Measuring the Relative Efficiencies of Free-Radical Photoinitiators.", Macromolecules, May 29, 1998, 31, pp. 4107-4113.	
	B277	International Application No. PCT/US2002/015551, "Communication Relating to the Results of the Partial International Search."	
	B278	International Search Report for PCT/US 00/30041, October 18, 2001.	
	B279	International Search Report for PCT/US 01/26049, February 19, 2002	
	B280	KANETOMO et al., "Robot for Use in Ultrahigh Vacuum.", Solid State Technology, August 1, 1997, pp. 63-72.	
[Handwritten mark]	B281	KIM et al., "Surface Energy and Polarity of Treated Indium-Tin-Oxide Anodes for Polymer Light-Emitting Diodes Studied by Contact Angle Measurements." Journal of Applied Physics 1999, pp. 2774-2778, Vol. 86, No. 5.	

Examiner Signature	<i>Amanda C. Walke</i>	Date Considered	6/8/05
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<i>Am</i>	B282	KIM et al., "High-precision Magnetic Levitation Stage for Photolithography.", Precision Engineering, April 1, 1998, Vol 22., No. 2, pp. 66 - 77.	
<i>/</i>	B283	KOSEKI, "Design and Accuracy Evaluation of High-Speed and High Precision Parallel Mechanism.", Proc. OF IEEE, January 1, 1998, Intl. Conf. on Robotics & Automation, pp. 1340-1345.	
<i>/</i>	B284	KOTACHI et al., "Si-Containing Positive Resist for ArF Excimer Laser Lithography.", Photopolymer Science and Technology, November 4, 1995, pp. 615 - 622.	
<i>/</i>	B285	LEE et al., "An Ultraprecision Stage for Alignment of Wafers in Advanced Microlithography.", Precision Engineering, September 1, 1997, pp. 113-122.	
<i>/</i>	B286	LEE et al., "Ultra Precision Positioning System for Servo Motor-piezo Actuator Using the Dual Servo Loop and Digital filter Implementation.", American Society for Precision Engineering, January 1, 1998, pp. 287-290.	
<i>/</i>	B287	LIN, "Multi-Layer Resist Systems.", Introduction to Microlithography, February 14, 1983, pp. 287-349.	
<i>/</i>	B288	LUCAS AEROSPACE, Free-Flex @ Pivot Catalog, January 1, 1999	
<i>/</i>	B289	MANSKY et al., "Large-Area Domain Alignment in Block Copolymer Thin Films Using Electric Fields.", Macromolecules, June 9, 1998, Vol. 31, No. 13, pp. 4399-4401.	
<i>/</i>	B290	MCMACKIN et al., "A Method of Creating a Turbulent Flow of Fluid between a Mold and a Substrate," U.S. Patent Application 10/898,034, Filed with USPTO July 23, 2004.	
<i>/</i>	B291	MCMACKIN et al., "A System of Creating a Turbulent Flow of Fluid between a Mold and a Substrate," U.S. Patent Application 10/898,037, Filed with USPTO July 23, 2004.	
<i>Am</i>	B292	MCMACKIN et al., Single Phase Fluid Imprint Lithography Method," U.S. Patent Application 10/677,639, Filed with USPTO Oct. 16, 2003.	

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	B293	MERLET, "Parallel Manipulators: State of the Art and Perspectives.", Advanced Robotics, January 1, 1994, Vol. 8, pp. 589-596.	
	B294	MIRKIN et al., "Emerging Methods for Micro-and-Nanofabrication.", MRS Bulletin, July 1, 2001, pp. 506-509.	
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	B296	NERAC.COM Retro Search, "Multi-Layer Resists.", September 2, 2004.	
	B297	NERAC.COM Retro Search, "Reduction of Dimension of Contact Holes.", August 31, 2004.	
	B298	NERAC.COM Retro Search, "Trim Etching of Features Formed on an Organic Layer.", September 2, 2004.	
	B299	NGUYEN, "Asymmetric Fluid-Structure Dynamics in Nanoscale Imprint Lithography." The University of Texas at Austin, August 1, 2001, pp. 1-111.	
	B300	OHYA et al., "Development of 3-DOF Finger Module for Micro Manipulation.", Proc. of IEEE, March 1, 1999, Intl. Conf. on Intelligent Robots and Systems, pp. 894-899.	
	B301	PAPIRER et al., "Abstract of The Grafting of Perfluorinated Silanes onto the Surface of Silica: Characterization by Inverse Gas Chromatography.", Journal of Colloid and Interface Science 159, August 1, 1993, pp. 238-242.	
	B302	PARIKH et al., "An Intrinsic Relationship between Molecular Structure in Self-Assembled n-Alkylsiloxane Monolayers and Deposition Temperature.", Journal of Phys. Chem., July 1, 1994, pp. 7577-7590.	
	B303	PAROS et al., "How to design Flexure Hinges.", Machine Design, November 25, 1965, pp 151-156.	

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				Filing Date	01/23/2004
				First Named Inventor	Xu et al.
				Group Art Unit	1752
				Examiner Name	Amanda C. Walke
Sheet	14	of	17	Attorney Docket Number	P113-55-03

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
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AW	B304	PENG et al., "Compliant Motion Control of Kinematically Redundant Manipulators.", IEEE Transactions on Robotics and Automation, December 1, 1993, Vol. 9, No. 6, pp.831-837.	
AW	B305	PERNETTE et al., "Design of Parallel Robots in Microbotics.", Robotica, January 1, 1997, Vol. 15, pp 417-420.	
AW	B306	PHYSIK INSTRUMENTS, PI Online-Catalog, 1999, from www.physikinstrument.com	
AW	B307	PHYSIK INSTRUMENTS, Product Catalog for Micropositioning, 1997	
AW	B308	RAIBERT et al., "Hybrid Position/Force Control of Manipulators.", Journal of Dynamic Systems, Measurement, and Control, June 1, 1981, Vol. 102, pp. 126 - 133.	
AW	B309	RONG et al., "Design and Analysis of Flexure-Hinge Mechanism Used in Micro-Positioning Stages.", ASME, January 1, 1994, Vol. 2, pp. 979-985.	
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AW	B312	SAGIV, "Organized Monolayers by Absorption. 1. Formation and Structure of Oleophobic Mixed Monolayers on Solid Surfaces.", Journal of American Chemical Society/102:1, January 2, 1980.	
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AW	B314	SOWAH, Diamond Used to Break the Mould [online], Sept. 18, 2002, [Retrieved on Sept. 2, 2003.] Retrieved from the Internet: <URL: http://eetuk.com/showArticle.jhtml?articleID=19203691>.	

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				Filing Date	01/23/2004
				First Named Inventor	Xu et al.
				Group Art Unit	1752
				Examiner Name	Amanda C. Walke
Sheet	15	of	17	Attorney Docket Number	P113-55-03

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<i>AW</i>	B315	SREENIVASAN et al., "An Imprint Lithography System to Produce a Light to Impinge upon and Polymerize a Liquid in Superimposition with Template Overlay Marks," U.S. Patent Application 10/864,214 Filed with USPTO June 9, 2004.	
<i>AW</i>	B316	SRINIVASAN et al., "Alkyltrichlorosilane-Based Self-Assembled Monolayer Films for Stiction Reduction in Silicon Micromachines.," Journal of Microelectromechanical Systems, June 1, 1998, Vol. 7, No. 2, p. 252-260.	
<i>AW</i>	B317	STEWART, "A Platform With Six Degrees of Freedom.," Proc Instn Mech Engrs, May 28, 1965, Vol 180, Pt1, No. 15, pp. 371-378.	
<i>AW</i>	B318	STIX, "Getting More from Moores", Scientific American	
<i>AW</i>	B319	SUNG et al., "Abstract of Micro/nano-tribological Characteristics of Self-Assembled Monolayer and its Application in Nano-Structure Fabrication", Elsevier Science B.V., July 1, 2003, Vol. 255, no. 7	
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<i>AW</i>	B321	TAJBAKHSI et al., "Three-Degree-of-Freedom Optic Mount for Extreme Ultraviolet.," American Society for Precision Engineering, January 1, 1998, pp. 359-362.	
<i>AW</i>	B322	TANIKAWA et al., "Development of Small-sized 3 DOF Finger Module in Micro Hand for Micro Manipulation.," Proc. of IEEE, March 1, 1999, Intl. conf. on Intelligent Robots and Systems, pp. 876-881.	
<i>AW</i>	B323	TOMITA et al., "A 6-axes Motion Control Method for Parallel-Linkage-Type Fine Motion Stage.," JSPE-58-04, pp. 118-124.	
<i>AW</i>	B324	Translation of Japanese Patent 02-24848, January 26, 1990.	
<i>AW</i>	B325	Translation of Japanese Patent 02-92603, April 3, 1990.	

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<i>PCW</i>	B326	TRILOGY SYSTEMS, "Linear Motors 310.", www.trilogysystems.com, January 1, 2001.	
<i>/</i>	B327	US Application No. 10/375,817, Filed 02-27-2003, NGUYEN et al., "Method to Reduce Adhesion between a Polymerizable Layer and a Substrate Employing a Flourine-Containing Layer."	
<i>/</i>	B328	US Application No. 10/463,396, Filed 06-17-2003, CHOI et al., "Method to Reduce Adhesion Between a Conformable Region and a Pattern of a Mold."	
<i>/</i>	B329	US Application No. 10/735,110, Filed 12-12-2003, NIMMAKAYALA et al., "Magnification Correction Employing Out-of-Plane Distortion of a Substrate."	
<i>/</i>	B330	US Application No. 10/785,248, Filed 02-24-2004, CHOI et al., "A Method to Control the Relative Position Between a Body and a Surface."	
<i>/</i>	B331	US Application No. 10/788,700, Filed 02-27-2004, SREENIVASAN et al., "Full-Wafer or Large Area Imprinting with Multiple Separated Sub-Fields for High Throughput Lithography."	
<i>/</i>	B332	US Application No. 10/806,956, Filed 03-23-2003, CHOI et al., "An Apparatus to Control Displacement of a Body Spaced-Apart from a Surface."	
<i>/</i>	B333	US Applications No. 10/194,991, Filed 07-11-2002, SREENIVASAN et al., "Step and Repeat Lithography Processes."	
<i>/</i>	B334	US Applications No. 10/687,519, Filed 10-16-2003, NGUYEN et al., "Low Surfaced Energy Template."	
<i>/</i>	B335	VANDERBILT UNIVERSITY OFFICE OF TRANSFER TECHNOLOGY; VU9730 Specifications for Improved Flexure Device; 2001, 25, 192-199.	
<i>PCW</i>	B336	WANG et al., "Passive Compliance versus Active Compliance in Robot-Based Automated Assembly Systems.", Industrial Robot, January 1, 1998, Vol. 25, No. 1, pp. 48-57.	

Examiner Signature	<i>Amanda C. Walke</i>	Date Considered	<i>June 8, 2005</i>
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		Group Art Unit	1752
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		Attorney Docket Number	P113-55-03
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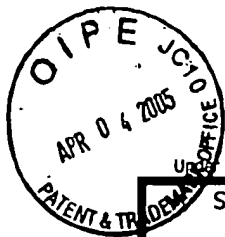
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	B338	WILLSON et al., "Step and Flash Imprint Lithography", U.S. Patent Application 10/806,051, Filed with USPTO March 22, 2004.	
	B339	WU, "Large Area High Density Quantized Magnetic Disks Fabricated Using Nanoimprint Lithography.", J. Vac. Sci. Technol., November 1, 1998, B 16(6), pp. 3825-3829.	
	B340	XIA et al., "Soft Lithography," Annu Rev. Mater Sci. 1998 28: 153-184	
	B341	XIA et al., "Soft Lithography," Angew. Chem. Int. Ed., January 1, 1998, pp. 551-575.	
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	B343	XU et al., "Methods for Fabricating Patterned Features Utilizing Imprint Lithography," U.S. Patent Application 10/694,284, Filed with USPTO Oct., 27, 2003.	

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STATEMENT BY APPLICANT**

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Sheet 1 of 5

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APPLICATION NUMBER	10/763,885
FILING DATE	01/23/2004
FIRST NAMED INVENTOR	Xu et al.
Group Art Unit	1752
Examiner Name	Walke, Amanda C.
Attorney Docket Number	P113-55-03

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			

ku	C1	6,391,217	B2	Schaffer et al.	5/21/2002	
	C2	2004/0007799	A1	Choi et al.	1/15/2004	
	C3	2004/0021254	A1	Sreenivasan et al.	2/5/2004	
	C4	2004/0021866	A1	Watts et al.	2/5/2004	
	C5	2004/0022888	A1	Sreenivasan et al.	2/5/2004	
	C6	2002/0177319	A1	Chou	11/28/2002	
	C7	6,518,189	B1	Chou	2/11/2003	
	C8	2004/0192041	A1	Jeong et al.	9/30/2004	
	C9	6,828,244	B2	Chou	12/7/2004	
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	C11	2004/0197843	A1	Chou et al.	10/7/2004	
	C12	2004/0156108	A1	Chou et al.	8/12/2004	
	C13	2004/0137734	A1	Chou et al.	7/15/2004	
	C14	2004/0131718	A1	Chou et al.	7/8/2004	
	C15	2004/0118809	A1	Chou et al.	6/24/2004	
	C16	2004/0046288	A1	Chou	3/11/2004	
	C17	2003/0080472	A1	Chou	5/1/2003	
ku	C18	2003/0034329	A1	Chou	2/20/2003	

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Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				APPLICATION NUMBER	10/763,885
				FILING DATE	01/23/2004
(use as many sheets as necessary)				FIRST NAMED INVENTOR	Xu et al.
				Group Art Unit	1752
Sheet	2	of	5	Examiner Name	Walke, Amanda C.
				Attorney Docket Number	P113-55-03

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			

AM	C19	2002/0042027	A1	Chou et al.	4/11/2002	
	C20	5,594,042		Glover et al.	1/14/1997	
	C21	5,629,095		Bujanowski et al.	5/13/1997	
	C22	5,861,467		Bujanowski et al.	1/19/1999	
	C23	5,331,020		Brown et al.	7/19/1994	
	C24	4,617,238		Crivello et al.	10/14/1986	
	C25	6,580,172	B2	Mancini et al.	6/17/2003	
	C26	11/012,374		Xu et al.	12/15/2004	
	C27	4,512,848		Deckman et al.	4/23/1985	
	C28	6,517,995	B1	Jacobson et al.	2/11/2003	
	C29	2004/0110856	A1	Young et al.	6/10/2004	
	C30	11/068,174		Xu et al.	2/28/2005	
	C31	5,028,366		Haraka et al.	7/2/1991	
	C32	5,601,641		Stephens	2/11/1997	
	C33	5,849,209		Kindt-Larsen et al.	12/15/1998	
	C34	5,849,222		Jen et al.	12/15/1998	

Examiner Signature	<i>Amanda C. Walke</i>	Date Considered	June 8, 2005
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Sheet	3	of	5	Attorney Docket Number	P113-55-03

FOREIGN PATENT DOCUMENTS							
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		Office	Number ⁴				
ACW	C35	WO	02/07199		Chou	1/24/2002	
	C36	WO	2004/114016		Chou et al.	12/29/2004	
	C37	WO	99/05724		Chou et al.	2/4/1999	
	C38	WO	03/010289		Chou et al.	2/6/2003	
	C39	WO	03/079416		Chou	9/25/2003	
ACW	C40	WO	03/099536		Chou et al.	12/4/2003	

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				Attorney Docket Number	P113-55-03

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
AW	C41	Colburn et al., Step and Flash Imprint Lithography for sub-100 nm Patterning, Proceedings of SPIE Vol. 3997, pp. 453 - 457, 1/1/2000	
	C42	Papirer et al., The Grafting of Perfluorinated Silanes onto the Surface of Silica: Characterization by Inverse Gas Chromatography, Journal of Colloid and Interface Science 159, pp.238-242, 8/1/1993	
	C43	Chou et al., Nanoimprint Lithography, Journal of Vacuum Science Technolgy B 14(16), pp. 4129-4133, 11/1/1996	
	C44	Colburn et al., Development and Advantages of Step-and-Flash Lithography, Solid State Technology, 7/1/2001	
	C45	Colburn et al., Characterization and Modeling of Volumetric and Mechanical Properties for Step and Flash Imprint Lithography Photopolymers, Journal of Vacuum Science Technology. Vol b. 19(6), 11/1/2001	
	C46	Yu et al., Properties of Fluorinated Amorphous Diamond Like Carbon Films by PECVD, Applied Surface Science 219 (3-4); pp. 228-237, 12/1/2003	
	C47	Compon et al., Electroanalysis at Diamond-Like and Doped-Diamond Electrodes, Electroanalysis 15(17); pp. 1349-1363, 9/1/2003	
	C48	Mansano et al., Protective Carbon Layer for Chemical Corrosion of Stainless Steel, Diamond and Related Materials 12 (3-7); pp. 749-752, 3/1/2003	
AW	C49	Butter et al., Production and Wetting Properties of Fluorinated Diamond-Like Carbon Coatings, Thin Solid Films, 311(1-2); pp. 107-113, 12/31/1997	

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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
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Jan	C50	Hakovirta et al., Heat Resistance of Fluorinated Diamond-Like Carbon Films, Diamond and Related Materials 10(8); pp. 1486-1490, 8/1/2001	
	C51	Zhu et al., The Improvement of the Oxidation Resistance of TiAl Alloys by Fluorine Plasma-Based Ion Implantation, Surface and Coatings Technology 158; pp. 502-507, 9/1/2002	
	C52	Yao et al., Structural, Mechanical and Hydrophobic Properties of Fluorine-Doped Diamond-Like Carbon Films Synthesized by Plasma Immersion Ion Implantation and Deposition (PIII-D), Applied Surface Science 230; pp. 172-178, 4/17/2004	
	C53	Bailey et al., Step and Flash Imprint Lithography: Defect Analysis, Journal of Vacuum Science, B 19(6), pp. 2806-2810, 11/1/2001	
	C54	Bailey et al., Step and Flash Imprint Lithography: Template Surface Treatment and Defect Analysis, Journal of Vacuum Science, B 18(6), pp. 3572-3577, 11/1/2000	
	C55	Schneider et al., Stripes of Partially Fluorinated Alkyl Chains: Dipolar Langmuir Monolayers	
Jan	C56	Bender et al., Multiple Imprinting in UV-based Nanoimprint Lithography: Related Material Issues, Microelectronic Engineering 61 - 62, pp. 407 - 413, 1/1/2002	

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